1984

Insect Control: Corn

Cooperative Extension South Dakota State University

FS 819

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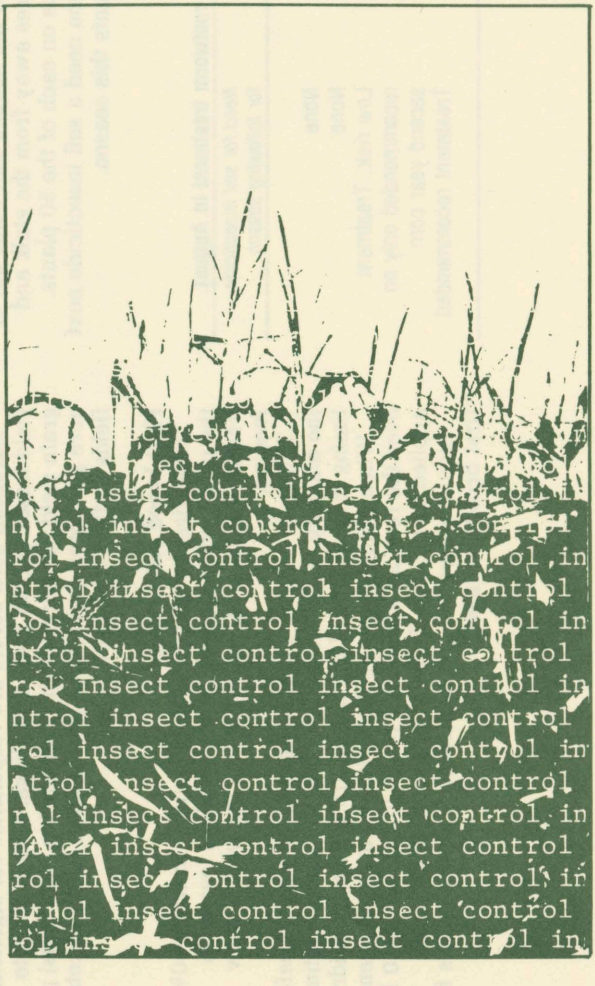

Cooperative Extension Service
South Dakota State University
U.S. Department of Agriculture

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Every year, somewhere in South Dakota, insects seriously reduce corn yield and somebody's profits. Rootworms and corn borers are the major pests affecting most growers.

Corn rootworms

Western and northern corn rootworms are a serious problem in continuous corn. Occasionally they (especially the northern species) can be a problem on first year corn following small grains and flax.

As a general rule, unless a field was surrounded by extremely high adult corn rootworm populations the previous year, we do not recommend treatment of first year corn.

Scouting for adult beetles

Monitor corn fields during August for adult corn rootworm beetles. Your counts will tell you if treatment is necessary the following year. This is the procedure:

1. Make counts at 7- to 10-day intervals, starting August 1. All fields should be counted three times, and late planted fields should be counted four times.
2. Count the **total number** of western and northern beetles on 50 plants. Examine 10 plants selected at random in five areas of the field. Make counts on 50 plants per 40 acres. Cover all parts of the field. Generally, more beetles are found in weed growths and along field borders.
3. Move slowly up to a plant so beetles aren't disturbed before they are identified. Count total northern (green to tan beetles) and western (black and yellow striped to black beetles). **Do not** count southerns (black spots on a green body).
4. Count beetles on the leaves first. Next, count on the tassel and the ear tip. Grasp the ear tip so the silks are enclosed in the palm of your hand and squeeze before the beetles escape. Cut off the ear tip with a knife, open your hand slowly, and count the beetles that come out of the silks. Next, pull the leaves away from the stalk and look in the leaf axils. Do this on each of the 50 plants.
5. Check Table 1 to see if you need a soil insecticide next season, based on beetle counts this season.

Table 1. Determine next year's rootworm treatment in August.

Total beetles per 50 plants at any one counting time	*Need for soil insecticide for following season*
0	None
1-25	None
26-49	Low risk. Treatment recommended only on second year corn
50-over	Treatment recommended

On second year corn, we recommend treatment when 26 to 49 beetles are found on 50 plants. On third (or more) year corn, treat when you find 50 or more beetles per 50 plants.

If more than four beetles per plant are found in corn fields bordering small grain fields destined to be corn next year and if the beetles are the northern species, treatment is recommended.

If you change your crop rotation to eliminate corn following corn, you will eliminate the need for a rootworm insecticide in most cases.

Rotation of the insecticide also helps. This means switching from class to class, such as from Furadan to an organophosphate such as Dyfonate or Counter. Problems in control of corn rootworm have been encountered when carbamates such as Furadan have been used continuously. See Table 2 for recommendations.

Adult rootworm beetles need to be controlled only on very rare occasions, when severe silk clipping would interfere with pollination. A number of insecticides (such as Malathion and Sevin) are available.

Table 2. Insecticides registered for corn rootworm control.

Insecticide	*Amount of formulation per 1,000-ft row for any row spacing (ounces)*
Organophosphate	
Counter 15G	8
Dyfonate 20G	6
Lorsban 15G	8
Mocap 15G	8
Thimet 20G	6
Carbamate	
Broot 15G	8
Furadan 15G	6

European corn borer

European corn borers are responsible for signficant yield losses in both grain and silage. Losses of up to 10% grain yield per borer cavity and one ton (wet basis) per acre per borer cavity have shown up in South Dakota fields in 1981 and 1982.

First brood corn borers

Treat first brood borers in dryland corn when 50% of the plants show shothole injury in whorl leaves. In irrigated corn, treat when 35% of the whorls show feeding.

Timing is critical. Treatments must be applied before the majority of the larvae bore into the plants. Optimum timing is when 5% of the larvae are feeding on midribs.

When granules are applied with ground equipment over the row, an actual rate of 0.5 lb will equal 1.0 lb/A applied by air. See Table 3 for recommendations.

Liquid sprays are less satisfactory than granules for first brood treatment.

Table 3. Insecticides registered for corn borer control.

Insecticide	*Dosage AI/A**	*Remarks, precautions*
Furadan 15G	6.7 lb/A	Follow label directions.
Dyfonate 20G	5 lb/A	Do not harvest feed or graze for 45 days.
Lorsban 15G	6.7 lb/A	Do not apply within 35 days of harvest.
Diazinon 14G	7 lb/A	None.

*active ingredient per acre

Second brood corn borers

Liquid sprays are effective against second brood borers. See Table 4.

Treat when 25% of the plants show larvae or egg masses on an accumulative basis (when daily percentages add up to 25%).

Adequate control of second broods may require two applications one week apart.

Table 4. Liquid sprays registered for second brood corn borers.

Insecticide	*Dosage AI/A**	*Remarks, precautions*
[1]Furadan 4F	1 lb	Do not harvest for 30 days. Follow label precautions on problems of contact and re-entry.
Pydrin	0.1-0.2 lb	Do not harvest for 21 days.
[2]Lorsban 4E	1 lb	Do not harvest for 35 days.
Penncap-M	0.5-1.0 lb	Do not harvest for 12 days. Use higher rate if applied by air.

*active ingredient per acre

[1]Labeled second brood only. 24(c) label.

[2]Can be applied through center pivot. See label precautions.

Cutworms

Cutworm control is needed on some fields during certain years. We do not recommend planting time treatment. Use rescue treatments. Insecticides recommended are Lorsban 4E at 1 lb/A or Pydrin at 0.1 to 0.2 lb/A.

Apply treatments when two worms can be found per 100 plants and when 3% of the plants show feeding. If corn is in the two- to four-leaf stage, treat when four worms are found per 100 plants.

For wireworm, seed corn maggot, or white grub, use one of the corn rootworm insecticides which is registered for the specific insect. For grasshoppers, see the recommendations in FS 556, Grasshopper control.

Reference to products is not intended to be an endorsement. Always refer to a current pesticide label and follow its instructions as a final authority on pesticide use.

South Dakota Poison Control Centers
(treatment and information)

ABERDEEN: **St. Luke's Hospital,** 305 South State St, Aberdeen, SD 57401. Phone: 605-225-2131.
Dakota Midland Hospital, 1400 NW 15 Ave, Aberdeen, SD 57401. Phone: 605-225-1880 or 1-800-592-1889.

RAPID CITY: **Rapid City Regional Hospital (East),** 353 Fairmont Blvd, Rapid City, SD 57701. Phone: 605-341-3333 or 1-800-742-8925.

SIOUX FALLS: **McKennan Hospital,** 800 E. 21st Street, Sioux Falls, SD 57101. Phone: 605-336-3894.

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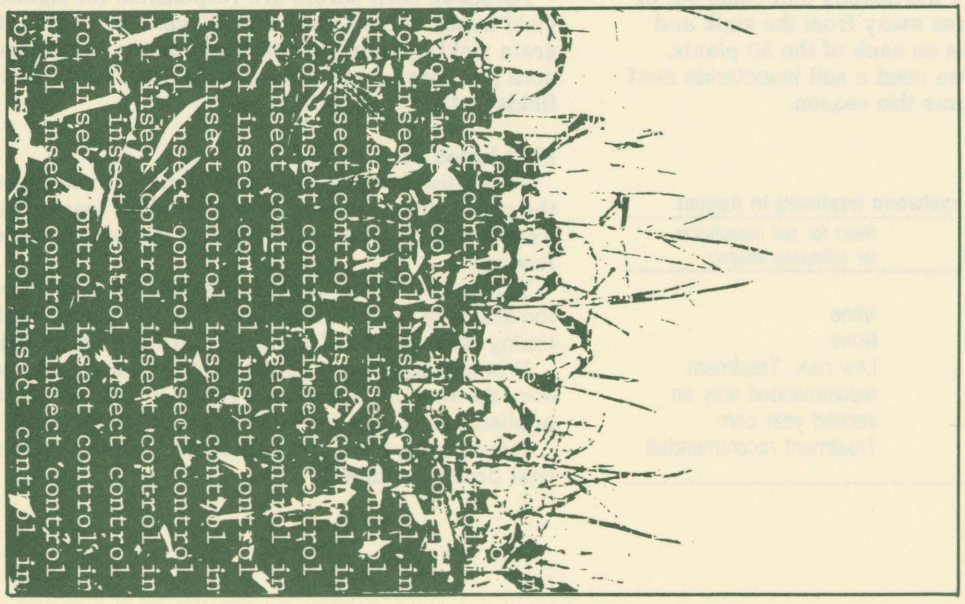

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